

Message Text

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ACTION OES-07

INFO OCT-01 EUR-12 ISO-00 ACDA-12 CIAE-00 INR-10 IO-13
L-03 NSAE-00 NSC-05 EB-08 NRC-05 SOE-02 DODE-00
SS-15 SP-02 CEQ-01 AID-05 CEA-01 COME-00 H-01
INT-05 OMB-01 PM-05 ICA-11 STR-07 TRSE-00 OIC-02
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-----014766 301826Z /72

R 301734Z MAY 78
FM AMEMBASSY VIENNA
TO SECSTATE WASHDC 6567
INFO AMEMBASSY BONN
AMEMBASSY BRUSSELS
AMCONSUL FRANKFURT
AMEMBASSY LONDON
AMEMBASSY PARIS
USDOEHQ WASHDC
USDOEHQ GERMANTOWN

C O N F I D E N T I A L SECTION 01 OF 02 VIENNA 04878

USIAEA, USEEC

DEPT PASS IO/SCT
DOE PASS AMMONS, IA

E.O. 11652: GDS
TAGS: PARM, TECH, IAEA
SUBJECT: IMPLEMENTATION OF U.S. HEU POLICY

REF: STATE 105672

1. FOLLOWING DISCUSSIONS IN PARIS WITH CEA AND CERCA
(REPORTED SEPTEL), U.S. INTERAGENCY TEAM DISCUSSING
URANIUM ENRICHMENT REDUCTIONS FOR RESEARCH AND TEST
REACTORS HELD TALKS IN BRUSSELS WITH EURATOM RESEARCH AND
DEVELOPMENT PERSONNEL AND WITH BELGONUCLEAIRE ON MAY 19,
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IN HANAU (FRG) WITH NUKEM ON MAY 22, AND PARTICIPATED IN
IAEA ADVISORY GROUP MEETING ON RESEARCH REACTOR REMOVAL
AND UPGRADING PROGRAMS IN VIENNA DURING THE PERIOD MAY
23-26.

2. IN BRUSSELS DISCUSSIONS, EURATOM REPORTED ON RECENTLY
INITIATED PROGRAM, IN SUPPORT OF INFCE WORKING GROUP 8,

TO STUDY POSSIBILITY OF REDUCING URANIUM FUEL ENRICHMENT IN RESEARCH REACTORS AT COMMUNITY COMMON RESEARCH CENTERS, PARTICULARLY THE PETTEN REACTOR. SINCE THESE STUDIES HAD ONLY RECENTLY BEGUN, EURATOM HAD NO SUBSTANTIVE RESULTS TO REPORT BUT IT WAS AGREED THAT THERE SHOULD BE CONTINUING CONTACTS WITH THE ANL/DOE PROGRAM ON ENRICHMENT REDUCTION. IN MEETING WITH BELGONUCLEAIRE, BELGONUCLEAIRE'S MAIN INTERESTS WERE INDICATED TO BE AS A PRINCIPAL USER OF THE BELGIAN CEN'S BR-2 REACTOR IN TESTING FUELS DEVELOPED BY BELGONUCLEAIRE, PRIMARILY FOR FAST REACTORS, (A CEN REPRESENTATIVE WAS PRESENT) AND AS AN OCCASIONAL ARCHITECT-ENGINEER FOR RESEARCH AND TEST REACTOR UPGRADING. CEN HAD DONE SOME STUDIES ON 20 PERCENT ENRICHED FUEL FOR BR-2 AND HAD CONCLUDED THAT SUCH FUEL COULD NOT BE USED WITHOUT SERIOUS IMPACTS ON REACTOR OPERATIONS AND PROGRAMS. IN PRELIMINARY STUDIES ANL HAD DRAWN THE CONCLUSION THAT SATISFACTORY OPERATION OF BR-2 WOULD NOT BE POSSIBLE WITH EITHER LEU OR INTERMEDIATE-ENRICHED FUELS UNDER PRESENT OR NEAR-FUTURE TECHNOLOGY, SUPPORTING CEN'S CONCLUSION. BELGONUCLEAIRE INDICATED THAT IN ANY REACTOR UPGRADING PROGRAMS WHICH IT UNDERTOOK IT WOULD KEEP IN MIND CURRENT U.S. POLICY ON SUPPLY OF HIGHLY ENRICHED URANIUM.

3. AT MEETING WITH NUKEM, IT WAS INDICATED THAT, IN AWARENESS OF THE IMPLICATIONS OF THE NEW U.S. HEU POLICY, CONFIDENTIAL

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NUKEM HAD COMMENCED A DEVELOPMENT PROGRAM FOR LEU FUELS ABOUT A YEAR EARLIER. RESULTS OF THIS PROGRAM, WHICH IS EXPECTED TO CONTINUE FOR ABOUT EIGHTEEN MORE MONTHS, HAVE BEEN ENCOURAGING. HOWEVER, SUCH A DEVELOPMENT PROGRAM IS COSTLY AND THE MANUFACTURE OF RESEARCH AND TEST REACTOR FUELS DOES NOT PRODUCE A MAJOR PROFIT; THUS, NUKEM WOULD VERY MUCH LIKE TO OBTAIN SOME SORT OF FINANCIAL ASSISTANCE. NUKEM WAS PLEASED TO LEARN THAT U.S. WAS CONSIDERING IN ADDITION TO 20 PERCENT MATERIAL, AN INTERMEDIATE ENRICHMENT, IN THE RANGE OF 35 TO 45 PERCENT U-235, SINCE THIS WOULD REDUCE FUEL DEVELOPMENT REQUIREMENTS FOR REACTORS IN THE 5 TO 50 MEGAWATT (THERMAL) RANGE IN COMPARISON WITH 20 PERCENT ENRICHED. NUKEM URGED THAT THE U.S., IN CONSULTATION WITH FABRICATORS AND USERS, SET A SINGLE U-235 ASSAY FOR THIS INTERMEDIATE RANGE FUEL SINCE THIS WOULD GREATLY SIMPLIFY THE FABRICATOR'S OPERATIONS. WE INDICATED THAT WE HAD THIS INTENTION BUT WOULD HAVE TO STUDY FURTHER WHAT THE BEST ENRICHMENT WOULD BE. IT WAS AGREED THAT NUKEM AND ANL SHOULD HOLD FURTHER TECHNICAL DISCUSSIONS AFTER NUKEM HAD REVIEWED MATERIAL ON THE ANL/DOE PROGRAM. WE OFFERED TO ENTERTAIN SPECIFIC PROPOSALS BY NUKEM AS TO HOW WE MIGHT COLLABORATE IN SUCH AREAS AS EXCHANGING DETAILED FUEL

FABRICATION TECHNOLOGY, TEST FUEL IRRADIATIONS AND POST-IRRADIATION EXAMINATIONS, ETC. AT ASIDE COMMENT DURING LUNCH, SENIOR NUKEM OFFICIAL REMARKED THAT NEW U.S. HEU SUPPLY POLICY HAD CAUSED NUKEM TO EXAMINE POSSIBILITY OF URENCO PRODUCING HEU. WHAT, IF ANY, CONCLUSION HAD BEEN REACHED WAS NOT REVEALED.

4. GENERALLY, RESULTS OF IAEA ADVISORY GROUP MEETING (WHICH WILLIAMSON WAS ELECTED TO CHAIR) WERE ENCOURAGING. DEVELOPERS/FABRICATORS (CEA, NUKEM AND GENERAL ATOMIC) ALL INDICATED AWARENESS OF PROBLEM AND ACTIVE DEVELOPMENT

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USIAEA, USEEC

PROGRAMS FOR LEU FUELS. REACTOR OPERATORS WERE, UNDERSTANDABLY, SOMEWHAT LESS THAN ENTHUSIASTIC AND WERE QUESTIONING OF CERTAIN FEATURES OF SUCH FUELS, BUT WERE NOT OUTRIGHTLY ANTAGONISTIC TO THEIR FUTURE USE. BOTH EXPRESSED CONCERNS OVER ATTITUDES OF COGNIZANT REGULATORY BODIES TOWARD NEW FUELS AND POSSIBILITY THAT TIME-CONSUMING MAJOR EFFORT MIGHT BE NEEDED TO OBTAIN SAFETY APPROVALS. NUKEM REVEALED WHAT MIGHT BE TECHNICAL BREAKTHROUGH IN INCREASING URANIUM DENSITIES AND PLATE THICKNESS WHILE

MAINTAINING HIGH YIELDS OF ACCEPTABLE FUEL PLATES; THIS HAD NOT BEEN BROUGHT OUT IN EARLIER HANAU DISCUSSIONS. CEA REPRESENTATIVE OFFERED SOME ADDITIONAL DETAILS ON "CAMEL" FUEL THEY HAVE DEVELOPED AND GENERAL ATOMICS ANNOUNCED IT WAS NOW READY TO ACCEPT IMMEDIATE ORDERS FOR HIGHER
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DENSITY 20 PERCENT ENRICHED FUEL, AND INTENDED TO PHASE OUT ENTIRELY ITS MANUFACTURE OF HEU FUELS.

5. CEJA-LEWIS PAPER ON "IMPROVING THE PROLIFERATION RESISTANCE OF RESEARCH AND TEST REACTORS" AND WILLIAMSON-HOYLE PAPER ON "INTERNATIONAL SECURITY BENEFITS OF UTILIZING LOWER ENRICHMENT IN RESEARCH REACTORS" BOTH WERE WELL RECEIVED AND DREW PERHAPS THE LARGEST NUMBER OF QUESTIONS OF ANY OF THE PAPERS PRESENTED. LATTER PAPER STIMULATED DISCUSSIONS OF U.S. EXPORT PROCEDURES BUT THESE WERE MORE OF A FACTUAL, THAN A CRITICAL, NATURE. BELGIAN CEN REPRESENTATIVE OFFERED USE OF BR-2 REACTOR IN THE TESTING OF NEW LEU FUELS; U.S. TEAM PROMISED TO FOLLOW UP QUICKLY ON THIS MATTER.

6. IN SIDE MEETING, DISCUSSIONS WERE HELD WITH REPRESENTATIVE OF FAIREY ENGINEERING (UK), WHICH MAKES "HERALD" AND SMALL UNIVERSITY (ARGONAUT-TYPE) REACTOR. FAIREY HAD BEEN TOLD BY UK AUTHORITIES THAT ONLY 20 PERCENT ENRICHED U-235 WOULD BE AVAILABLE FOR THESE REACTORS IN THE FUTURE. FAIREY HAD DONE PHYSICS AND OTHER CALCULATIONS AND BELIEVED THAT USE OF 20 PERCENT ENRICHED WAS FEASIBLE BUT WAS STILL UNEASY. AS RESULT, ANL HAS OFFERED TO CHECK FAIREY CALCULATIONS AND ALSO TO RUN A CRITICAL EXPERIMENT RELATED TO ITS REACTOR FUELED WITH 20 PERCENT U-235. USEFUL SIDE DISCUSSION WAS ALSO HELD WITH IAEA PERSONNEL CONCERNING AGENCY ROLE IN INFORMATION DISSEMINATION AND TECHNICAL ASSISTANCE AND PRELIMINARY VIEWS WERE EXCHANGED ON POSSIBLE USE OF AUSTRIAN SEIBERSDORF REACTOR AS DEMONSTRATION OF NEW HIGH-PERFORMANCE LEU FUELS. KIRK

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